

coplanar laser illumination beam (PLIB)/field of view (FOV) through said first light transmission aperture and said first imaging window;

a side PLIIM-based subsystem mounted within said side portion of the housing, and producing and projecting a second planar coplanar laser illumination beam (PLIB)/field of view (FOV) through said second light transmission aperture and said second imaging window;

an electronic product weight scale operably connected to said bottom PLIIM-based subsystem; and

a ~~local~~ data communication network mounted within the housing, and establishing a high-speed data communication link between said bottom and side PLIIM-based subsystems and said electronic product weight scale.

Claim 264 (currently amended): The bioptical ~~PLIIM-based~~ system of claim 263, wherein each bottom and side PLIIM-based subsystem comprises:

a plurality of visible laser diodes (VLDs) having different color producing wavelengths to produce a multi-spectral planar laser illumination beam (PLIB) from the side and bottom imaging windows; and

a linear electronic image detection array for capturing color images of objects (e.g. produce) as the objects are manually transported past said first and second imaging windows of said bioptical ~~PLIIM-based~~ system, along the direction of an indicator arrow, by the user or operator of the system.

Claim 265 (currently amended): The bioptical ~~PLIIM-based~~ system of claim 263, wherein said PLIIM-based subsystem installed within said bottom portion of the housing, projects an automatically swept PLIB and a stationary 3-D FOV through said bottom light transmission window.

Claim 266 (currently amended): The bioptical ~~PLIIM-based~~ system of claim 263, wherein each PLIIM-based subsystem comprises:

a plurality of visible laser diodes (VLDs) having different color producing wavelengths to produce a multi-spectral planar laser illumination beam (PLIB) from said side and bottom imaging windows; and

an area-type electronic image detection array for capturing color images of objects (e.g. produce) as the objects are presented to the imaging windows of ~~the~~ said bioptical system by the user or operator of the system.

Claim 267 (currently amended): A bioptical ~~PLIIM-based~~ planar laser illumination and imaging (PLIIM) based product dimensioning, analysis and identification system comprising:

a housing having a bottom portion and a side portion;

bottom and side light transmission apertures formed in said bottom and side portions, respectively;

a first imaging window mounted over said first light transmission aperture, and a second ~~light transmission aperture~~ imaging window mounted over said second light transmission aperture;

a bottom PLIIM-based subsystem mounted within said bottom portion of ~~the~~ said housing, and employing (i) a first linear array of visible laser diodes (VLDs) having different color producing wavelengths so as to produce and project a first multi-spectral planar laser illumination beam (~~PLIB~~ PLIB) through said first light transmission aperture and said first imaging window, and (ii) a first linear electronic image detection array having image formation optics with a first field of view (FOV) that is aligned with said first multi-spectral PLIB in a coplanar relationship so as to capture images of ~~products~~ objects being moved past said first imaging window; and

a side PLIIM-based subsystem mounted within said side portion of ~~the~~ said housing, and employing a second linear array of visible laser diodes (VLDs) having different color producing wavelengths so as to produce and project a second multi-spectral planar laser illumination beam (PLIB) through said second light transmission aperture and said second imaging window, and a second linear electronic image detection array having image formation optics with a second field of view (FOV) that is aligned with said second multi-spectral PLIB in a coplanar relationship so as to capture images of objects ~~products~~ being moved past said second imaging window.

Claim 268 (currently amended): A bioptical ~~PLIIM-based product~~ planar laser illumination and imaging (PLIIM) based object dimensioning, analysis and identification system comprising:

a housing having a bottom portion and a side portion;

bottom and side light transmission apertures formed in bottom and side portions, respectively;

a first imaging window mounted over said first light transmission aperture, and a second ~~light transmission aperture~~ imaging window mounted over said second light transmission aperture;

a bottom PLIIM-based subsystem mounted within said bottom portion of ~~the~~ said housing, and employing (i) a first linear array of visible laser diodes (VLDs) having different color producing wavelengths so as to produce and project a first multi-spectral planar laser illumination beam (PLIB) through said first light transmission aperture and said first imaging

window, and (ii) a first area-type electronic image detection array having image formation optics with a first 3-D field of view (FOV), through which said first PLIB is automatically ~~swept~~ swept in a coplanar relationship with at least a portion of said first 3-D FOV so as to capture images of ~~products~~ objects being moved past said first imaging window; and

a side PLIIM-based subsystem mounted within said side portion of ~~the~~ said housing, and employing (i) a second linear array of visible laser diodes (VLDs) having different color producing wavelengths so as to produce and project a second multi-spectral planar laser illumination beam (PLIB) through said second light transmission aperture and said second imaging window, and (ii) a second area-type electronic image detection array having image formation optics with a second 3-D field of view (FOV), through which said first multi-spectral PLIB is automatically ~~swept~~ swept in a coplanar relationship with at least a portion of said 3-D FOV so as to capture images of ~~products~~ objects being moved past said ~~first~~ second imaging window.

Claim 269 (currently amended): A bioptical ~~PLIIM-based-product~~ planar laser illumination and imaging (PLIIM) based object dimensioning, analysis and identification system comprising:

a pair of PLIIM-based object identification and attribute acquisition subsystems,
wherein each PLIIM-based object identification and attribute acquisition subsystem produces a multi-spectral planar laser illumination beam (PLIB) for illuminating objects during imaging, and employs a linear electronic image detection array with image formation optics having a field of view (FOV) that is coplanar with said multi-spectral PLIB; and

wherein said bioptical PLIIM-based object identification and attribute acquisition subsystem is programmed to analyze captured images of objects and determine the shape/geometry, dimensions and/or color thereof.

Claim 270 (currently amended): A bioptical ~~PLIIM-based-product~~ planar laser illumination and imaging (PLIIM) based object dimensioning, analysis and identification system comprising:

a pair of PLIIM-based object identification and attribute acquisition subsystems,
wherein each PLIIM-based object identification and attribute acquisition subsystem produces a multi-spectral planar laser illumination beam (PLIB) for illuminating objects during imaging, and employs an area-type electronic image detection array with image formation optics having a field of view (FOV), through which said multi-spectral PLIB is automatically swept in a coplanar relationship during illumination and imaging operations; and

wherein said bioptical PLIIM-based object identification and attribute acquisition subsystem is programmed to analyze captured images of objects and determine the shape/geometry, dimensions and/or color thereof.

Claim 271 (currently amended): A bioptical ~~PLIIM-based product~~ planar laser illumination and imaging (PLIIM) based object dimensioning, analysis and identification system comprising a pair of PLIIM-based package identification and dimensioning subsystems, wherein each said subsystem employs a 2-D electronic image detection array and is programmed to analyze captured images of objects and determine the shape/geometry, dimensions and/or color thereof.

Claim 272 (currently amended): A bioptical ~~PLIIM-based product~~ planar laser illumination and imaging (PLIIM) based object identification, dimensioning and analysis (~~PIDA~~) system comprising a pair of PLIIM-based package identification systems arranged within a compact ~~POS~~ point-of-sale (POS) housing having bottom and side light transmission apertures, located beneath a pair of spatially-isolated imaging windows.